AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

On page 1, after the title, please insert the following paragraph:

- - **RELATED APPLICATIONS**

This application is a divisional of another divisional application concurrently filed herewith, identified as attorney docket number 20402-00639-US1, which is a divisional of U.S. Patent Application Number 10/057,910 filed January 29, 2002, pending.- -

Please replace the paragraph beginning on page 4, line 11 and continuing onto page 5, line 6, with the following amended paragraph:

According to this invention, there is a second noninvasive continuous blood pressure measuring apparatus is provided which includes: an oscillator for generating an oscillation signal having a desired frequency and a desired amplitude; an exciter arranged responsive to the oscillation signal for inducing an exciter waveform in an artery and ~~a~~ blood in the artery of a living body; a sensor arranged a predetermined interval apart from the exciter for receiving the induced exciter waveform transmitted through the artery from the living body and outputting **a** detection signal; a calibration hemadynamometer for detecting absolute values of a maximum blood pressure and a minimum blood pressure of the living body; a calculating portion for receiving absolute values from the calibration hemadynamometer and successively calculating and outputting an instantaneous blood pressure value from a phase relation between the oscillation signal and the detection signal and the absolute values; and a display for displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted by the calculation portion.

Please replace the paragraph beginning on page 7, line 3 and continuing onto page 8, line 2, with the following amended paragraph:

According to this invention, there is provided a third noninvasive continuous blood pressure measuring apparatus which includes: an oscillator for generating an oscillation signal having a desired frequency and a desired amplitude; an exciter responsive to the oscillation signal for inducing an exciter waveform in an artery and ~~a~~ blood in the artery of a living body; a sensor arranged a predetermined interval apart from the exciter for receiving the induced exciter waveform transmitted through the artery from the living body and outputting a detection signal; an a/d converter for a/d-converting the detection signal; a calibration hemadynamometer for detecting absolute values of a maximum blood pressure and a minimum blood pressure of the living body; a microprocessor including a filter portion and a calculating portion, the filter portion band-pass-filtering the detection signal from the a/d converter, the calculating portion receiving the absolute values from the calibration hemadynamometer and successively calculating and outputting an instantaneous blood pressure value from a phase relation between the oscillation signal and the detection signal from the filter portion and the absolute values; and a display for displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted by the calculation portion.

Please replace the paragraph beginning on page 8, line 3 and continuing onto page 9, line 1, with the following amended paragraph:

According to this invention, there is provided a fourth noninvasive continuous blood pressure measuring apparatus which includes: an oscillator for generating an oscillation signal having a desired frequency and a desired amplitude; an exciter responsive to the oscillation signal for inducing an exciter waveform in an artery and ~~a~~ blood in the artery of a living body; a sensor arranged a predetermined interval apart from the exciter for receiving the induced exciter waveform transmitted through the artery

from the living body and outputting ~~a~~ detection signal; a calibration hemadynamometer for detecting absolute values of a maximum blood pressure and a minimum blood pressure of the living body; a bandpass filter for band-pass-filtering the detection signal from the sensor; an a/d converter for a/d-converting the detection signal from the bandpass filter; a microprocessor including a calculating portion for receiving the absolute values from the calibration hemadynamometer and successively calculating and outputting an instantaneous blood pressure value from a phase relation between the oscillation signal and the detection signal from the a/d converter and the absolute values; and a display for displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted by the calculation portion.

Please replace the paragraph beginning on page 9, line 2 and continuing onto page 10, line 5, with the following amended paragraph:

According to this invention, there is provided a fifth noninvasive continuous blood pressure measuring apparatus which includes: an oscillator for generating an oscillation signal of which frequency is controlled; an exciter responsive to the oscillation signal for inducing an exciter waveform in an artery and ~~a~~ blood in the artery of a living body; a sensor arranged a predetermined interval apart from the exciter for receiving the induced exciter waveform transmitted through the artery from the living body and outputting a detection signal; a calibration hemadynamometer for detecting absolute values of a maximum blood pressure and a minimum blood pressure of the living body; a frequency determining portion responsive to the sensor for controlling the oscillator to successively control the frequency at different frequencies and determining one of the difference frequencies in accordance with the detection signal outputted at different frequencies, and then, controlling the oscillator to continuously generate the oscillation signal at one of the different frequencies; a calculating portion responsive to the frequency determining portion for receiving absolute values from the calibration hemadynamometer and successively calculating and outputting an instantaneous blood pressure value from a

phase relation between the oscillation signal and the detection signal at one of the different frequencies and the absolute values; and a display for displaying a continuous blood pressure successively outputted by the calculation portion.

Please replace the paragraph beginning on page 11, line 8 and continuing onto page 12, line 11, with the following amended paragraph:

According to this invention, there is provided a sixth noninvasive continuous blood pressure measuring apparatus which includes: an oscillator for generating an oscillation signal of which waveform is controlled; an exciter responsive to the oscillation signal for inducing an exciter waveform in an artery and ~~a~~ blood in the artery of a living body; a sensor arranged a predetermined interval apart from the exciter for receiving the induced exciter waveform transmitted through the artery from the living body and outputting **a** detection signal; a calibration hemadynamometer for detecting absolute values of a maximum blood pressure and a minimum blood pressure of the living body; a waveform determining portion responsive to the sensor for controlling the oscillator to control the oscillation signal successively have different waveforms and determining one of the difference waveforms in accordance with the detection signal outputted at different waveforms and then, controlling the oscillator to continuously generate the oscillation signal at one of the different waveforms; a calculating portion responsive to the frequency determining portion for receiving absolute values from the calibration hemadynamometer and successively calculating and outputting an instantaneous blood pressure value from a phase relation between the oscillation signal and the detection signal at one of the different waveforms and the absolute values; and a displaying for displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted by the calculation portion.

Please replace the paragraph beginning on page 13, line 14 and continuing onto page 14, line 12, with the following amended paragraph:

According to this invention, there is provided a first method of noninvasively measuring continuous blood pressure including the steps of: generating an oscillation signal of which frequency is controlled; providing an exciter responsive to the oscillation signal inducing an exciter waveform in an artery and ~~a~~ blood in the artery of a living body; providing a sensor arranged a predetermined interval apart from the exciter for receiving the induced exciter waveform transmitted through the artery from the living body and outputting **a** detection signal; detecting absolute values of a maximum blood pressure and a minimum blood pressure of the living body; controlling the oscillation signal to successively control the frequency at different frequencies and determining one of the difference frequencies in accordance with the detection signal outputted at different frequencies; continuously generating the oscillation signal at one of the different frequencies; receiving absolute values and successively calculating and outputting an instantaneous blood pressure value from a phase relation between the oscillation signal and the detection signal at one of the different frequencies and the absolute values; and displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted.

Please replace the paragraph beginning on page 14, line 13 and continuing onto page 15, line 11, with the following amended paragraph:

According to this invention, there is provided a second method of noninvasively measuring continuous blood pressure including the steps of: generating an oscillation signal of which waveform is controlled; providing an exciter responsive to the oscillation signal inducing an exciter waveform in an artery and ~~a~~ blood in the artery of a living body; providing a sensor arranged a predetermined interval apart from the exciter for receiving the induced exciter waveform transmitted through the artery from the living body and outputting **a** detection signal; detecting A-absolute values of a maximum blood pressure and a minimum blood pressure of the living body; controlling the oscillation signal to successively control the frequency at different waveforms and determining one

of the difference waveforms in accordance with the detection signal outputted at different waveforms; continuously generating the oscillation signal at one of the different waveforms; receiving absolute values and successively calculating and outputting an instantaneous blood pressure value from a phase relation between the oscillation signal and the detection signal at one of the different waveforms and the absolute values; and displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted.

Please replace the paragraph beginning on page 18, line 9 and continuing onto page 19, line 23, with the following amended paragraph:

The noninvasive continuous blood pressure measuring apparatus of the first embodiment includes an oscillator 1 for generating an oscillation signal 31 having a predetermined (desired) frequency and a predetermined amplitude, a plurality of exciters 2 (2a to 2d) arranged in a direction X with a distance D1, responsive to the oscillation signal 31, for inducing exciter waveforms in an artery 20 and ~~a~~ blood 23 in the artery 20 of a living body (arm) 21, a plurality of sensors 3 (3a to 3h) arranged in the direction X with a distance D1 and apart from the column of the exciters 2 by a distance D2 respectively for receiving exciter waveforms from the living body 21 and outputting detection signals 100a to 100g, respectively, a timing signal generating circuit 9 for generating timing signals 9a and 9b, a multiplexer 4 for switching and recurrently outputting one of outputs of the sensors 3a to 3h in response to the timing signal 9a, a/d converter 5 for a/d-converting one of the outputs of the sensors 3 from the multiplexer 4, a determining portion 10 responsive to the multiplexer 4 through the a/d converter 5 for determining one of the outputs in accordance with an output of the multiplexer 4 and a predetermined judging condition such as amplitude, a calibration hemadynamometer 6 for detecting absolute-values of a maximum blood pressure and a minimum blood pressure of the living body, a calculating portion 7 for operating the calibration hemadynamometer 6 and successively calculating and outputting an instantaneous blood

pressure value from a phase relation between the oscillation signal 31 and one of the outputs 100a to 100g indicated by the determination result from the determining portion 10 and the absolute values, and a display 8 for displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted by the calculation portion 7. The calibration hemadynamometer 6 may measure the absolute values of a maximum blood pressure and a minimum blood pressure of the living body periodically without controlling by the calculation portion 7. The distance D2 is constant. On the other hand, the display D1 can be varied with every sensor 3 to surely detect the exciter waveforms.

Please replace the paragraph beginning on page 33, line 20 and continuing onto page 35, line 2, with the following amended paragraph:

The noninvasive continuous blood pressure measuring apparatus of the eighth embodiment includes the oscillator 1a for generating the oscillation signal 214a of which frequency controlled to a predetermined (desired) frequency and the corresponding oscillation signal data 210a, a bandpass filter 314 for bandpass-filtering the oscillation signal data 210a and outputting frequency reference signal data 314a, the exciter 2 for inducing exciter waveforms in an artery 20 and ~~a~~ blood 23 in the artery of a living body (arm) 21, the sensor 3 apart from the exciter 2 by a distance D2 for receiving exciter waveforms and a natural blood pressure waveform from the living body and outputting **a** detection. signal, a pre-amplifier 302 for amplifying the detection signal including a plurality of patient's physiological parameters, an a/d converter 5 for a/d-converting an output of ~~of~~ the pre-amplifier 302 to output detection data, the microprocessor 301 for effecting a bandpass filtering process for detecting the exciter waveform and a low pass filtering process for detecting a natural blood pressure wave form from the detection data and a phase detection process to output phase difference data, a calibration hemadynamometer 6 for detecting absolute values of a maximum blood pressure and a minimum blood pressure of the living body, a calculating portion 7 for successively

calculating and outputting an instantaneous blood pressure value from a phase relation between the frequency reference signal data and the detected exciter waveform and the detected natural blood pressure waveform and the absolute values from the calibration hemadynamometer 6, and a display 8 for displaying a continuous blood pressure variation from the instantaneous blood pressure successively outputted by the calculation portion 7.